a device adapted for connection to a local bus of a host computer, wherein the device occupies an I/O slot on the local and is accessible at a first set of address, the device having a register set with an address assignment in the first set of addresses that differs from a standard address assignment of a register set for a UART corresponding to the I/O slot; and

a communications driver executable by the host computer, the communication driver comprising a UART emulation, wherein in response to the host computer executing a procedure that targets an access at a register set of a UART, the UART emulation converts the access as required for accessing the register set and address assignment of the device.

18. The modem of claim 17, wherein the procedure that targets an access at the register set of a UART is part of an operating system that the host computer executes.

19. (Amended) A communication program executable by a host computer running an operating system that assigns a first port to a UART, the communication program comprising:

a UART emulation that in response a procedure requesting access to a register of a UART at a first port, instead accesses storage locations in a [main] memory of the host computer; and

an I/O handler [which] that transfers values between the storage locations [in main memory] and a register set of a non-standard device having an address assignment that differs from that of a UART, wherein [: the host computer runs an operating system that logically assigns a first port to a UART, and] the register set of the non-standard device physically occupies addresses corresponding to the first port.

20. The communication program of claim 19, wherein the communication program is a driver operating under the operating system.

21. The communication program of claim 19, further comprising modem software that implements a conversion between data and digital samples representing a signal in accordance with a communication protocol.

REMARKS

Claims 1-10 and 17-21 were pending in the above-identified application when last examined and are amended as indicated above. The claim amendments clarify the claim

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language and are not intended to limit the scope of the claims, unless the claim language is expressly quoted in the following remarks to distinguish over the art cited.

Claims 1, 2, 4-9, and 17-21 were rejected under 35 U.S.C. § 102(e) as anticipated by U.S. patent No. 5,678,059 (Ramaswamy). Applicants respectfully traverse the rejection.

Claim 1 distinguishes over Ramaswamy at least by reciting, "a communications driver ... comprising a UART emulation." The Examiner cites the program 411 (MODEM.EXE) shown in Fig. 4 of Ramaswamy as being or suggesting a UART emulation. However, Ramaswamy provides no indication or suggestion of a UART emulation in program 411.

Fig. 4 of Ramaswamy shows an operating system 304, a modified COM driver 410, a standard COM driver 306, and the program 411 (MODEM.EXE). "Driver 410 is a software layer which provides the interface required by operating system 304 along with examination of function calls to the personal computer's communication ports. If the function call is intended for a particular communication port, then driver 410 redirects this call... Driver 410 need not provide the other functions provided by a COM driver, such as UART configuration," column 4, lines 6-13. Accordingly, Ramaswamy indicates data sent to program 411 does not need the UART configuration. In column 4 at lines 43-48, Ramaswamy states, "The major tasks provided by program 411 include ... providing an interface to the DSP 102. The interface to the DSP hardware is typically a proprietary one." Thus, Ramaswamy describes software (modified COM driver 410 and MODEM.EXE) and hardware (modem 409) that does not use the UART configuration. Accordingly, there is no need for or suggestion of a UART emulation in program 411.

In contrast, the standard COM driver for the Windows operating system (e.g., driver 306 in Fig. 4 of Ramaswamy) expects to send data to a UART. In accordance with an aspect of the current invention, a UART emulation can be between a COM driver that expects a UART and a modem having a non-UART interface. Ramaswamy fails to suggest a UART emulation because Ramaswamy when accessing a non-UART device (e.g., DSP 102), bypasses the COM driver 306, which handles UART devices.

The Examiner also noted column 3, lines 7-9 of Ramaswamy. In column 3, lines 4-9 state, "all communication destined for any parallel or serial communication port passes through the COM driver. Such parallel and serial communication ports are associated with a peripheral device. ... the use of this uniform software layer readily permits the replacement of the UART functionality with an arbitrary interface." Applicants submit that this passage

from Ramaswamy is merely indicating that software (e.g., a COM driver) can accommodate an arbitrary parallel or serial hardware interface. Ramaswamy does not suggest using a UART emulation in implementing the arbitrary interface.

For the above reasons, independent claim 1 and claim 2, which depends from claim 1, are patentable over Ramaswamy.

Independent claim 4 distinguishes over Ramaswamy at least by reciting, "A method for communication between a computer and a device having an I/O interface which differs from the I/O interface of a UART, comprising: ... allocating in ... the computer, storage locations which correspond to registers of a UART; and transmitting information via the local bus between the I/O interface of the device and the allocated storage locations." Although Ramaswamy suggests a modem 409 having a non-UART interface, Ramaswamy fails to suggest "allocating ... storage locations which correspond to registers of a UART; and transmitting information ... between the I/O interface of the device and the allocated storage locations" because Ramaswamy does not suggest use of the UART configuration in the communication path to the non-UART interface. Accordingly, claim 4 is patentable over Ramaswamy.

Claims 5-9 depend from claim 4 and are patentable over Ramaswamy for at least the same reasons that claim 4 is patentable over Ramaswamy.

Independent claim 17 distinguishes over Ramaswamy by reciting, "a communications driver ... comprising a UART emulation." For the reasons given above in regard to claim 1, Ramaswamy fails to disclose or suggest a UART emulation. Accordingly, claim 17 and claim 18, which depends from claim 17, are patentable over Ramaswamy.

Independent claim 19 distinguishes over Ramaswamy at least by reciting, "a UART emulation that in response a procedure requesting access to a register of a UART at a first port, instead accesses storage locations in a main memory of the computer." As noted above, Ramaswamy fails to disclose or suggest a UART emulation. Accordingly, claim 19 and claims 20 and 21, which depend from claim 19, are patentable over Ramaswamy.

For the above reasons, Applicants request reconsideration and withdrawal of the rejection under 35 U.S.C. § 102.

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Claims 3 and 10 were rejected under 35 U.S.C. § 103(a) as unpatentable over Ramaswamy in view of U.S. patent No. 5,640,594 (Gibson). Applicants respectfully traverse the rejection.

The Examiner cites Gibson as disclosing a comparator, a pattern generator, a counter, and a register. Gibson like Ramaswamy fails to suggest a UART emulation. Accordingly, claims 3 and 10 are patentable over the combination of Gibson and Ramaswamy for at least the same reasons that their respective base claims 1 and 4 are patentable over Ramaswamy.

For the above reasons, Applicants request reconsideration and withdrawal of this rejection under 35 U.S.C. § 103.

For the above reasons, Applicants respectfully request allowance of the application including claims 1-10 and 17-21. Please telephone the undersigned at (408) 453-9200 if there are any questions concerning the application or this response.

Respectfully submitted,

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